 Name_____

Graphing Simple Rational Functions

Date_____ Period____

Identify the vertical asymptotes, horizontal asymptote, domain, and range of each.

1) $f(x) = -\frac{4}{x}$

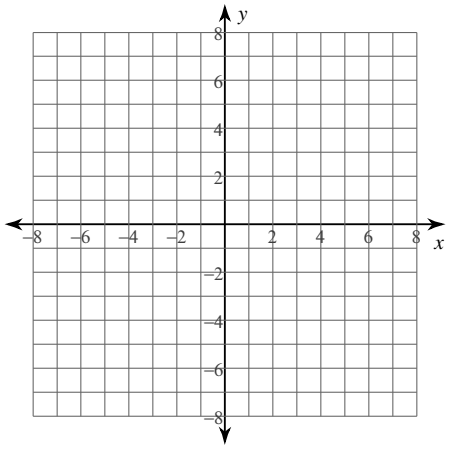
2) $f(x) = \frac{4}{x-1} + 1$

3) $f(x) = -\frac{3}{x-1} - 1$

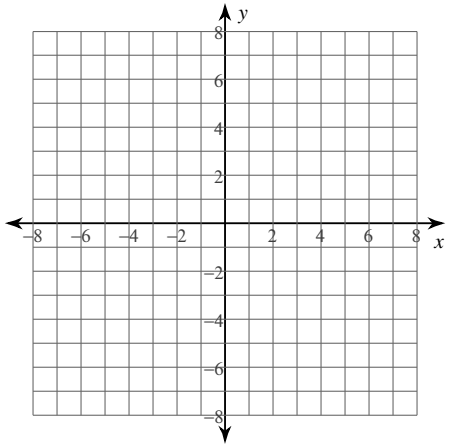
4) $f(x) = -\frac{3}{x}$

Identify the vertical asymptotes, horizontal asymptote, domain, and range of each. Then sketch the graph.

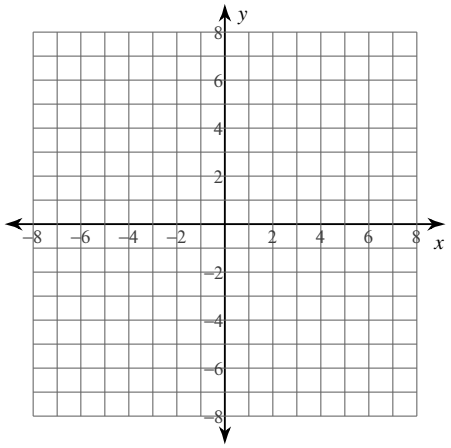
5) $f(x) = \frac{3}{x+1} - 2$



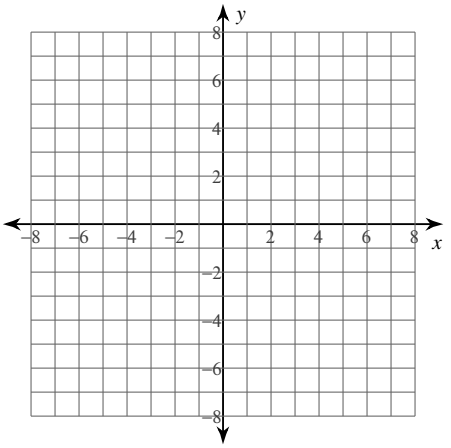
6) $f(x) = \frac{3}{x+1} + 2$



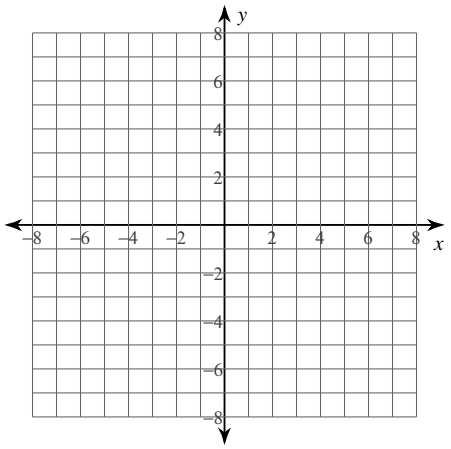
7) $f(x) = \frac{3}{x} + 1$



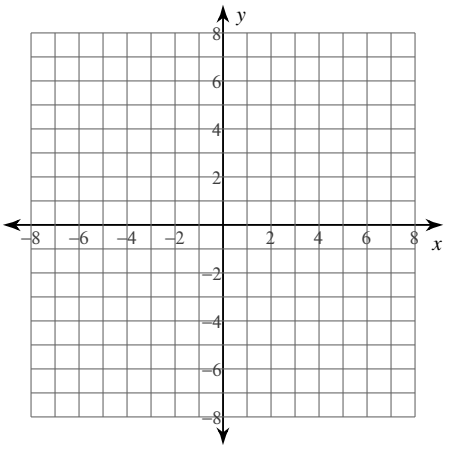
8) $f(x) = \frac{2}{x-3} + 1$



9) $f(x) = -\frac{4}{x+1} + 1$



10) $f(x) = \frac{4}{x} + 2$



Critical thinking question:

11) Write a function of the form $f(x) = \frac{a}{x-h} + k$ with a vertical asymptote at $x = 25$

Graphing Simple Rational Functions

Date_____ Period____

Identify the vertical asymptotes, horizontal asymptote, domain, and range of each.

1) $f(x) = -\frac{4}{x}$

Vertical Asym.: $x = 0$
Horz. Asym.: $y = 0$
Domain: All reals except 0
Range: All reals except 0

2) $f(x) = \frac{4}{x-1} + 1$

Vertical Asym.: $x = 1$
Horz. Asym.: $y = 1$
Domain: All reals except 1
Range: All reals except 1

3) $f(x) = -\frac{3}{x-1} - 1$

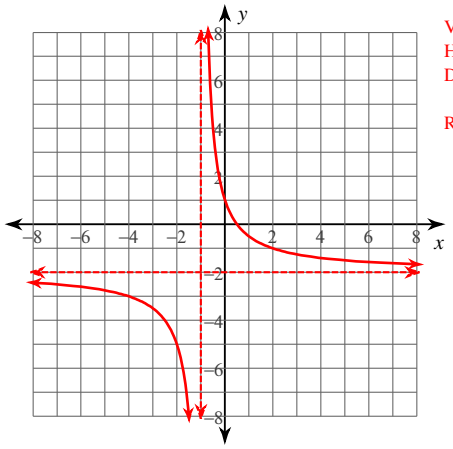
Vertical Asym.: $x = 1$
Horz. Asym.: $y = -1$
Domain: All reals except 1
Range: All reals except −1

4) $f(x) = -\frac{3}{x}$

Vertical Asym.: $x = 0$
Horz. Asym.: $y = 0$
Domain: All reals except 0
Range: All reals except 0

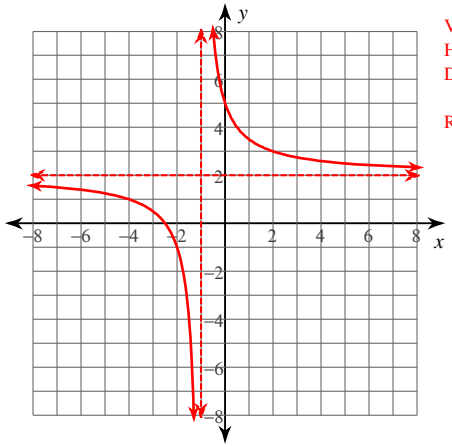
Identify the vertical asymptotes, horizontal asymptote, domain, and range of each. Then sketch the graph.

5) $f(x) = \frac{3}{x+1} - 2$



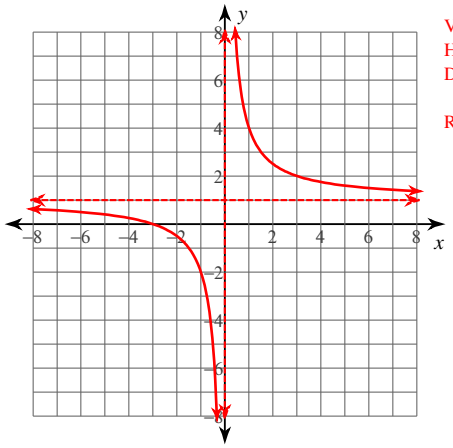
Vertical Asym.: $x = -1$
Horz. Asym.: $y = -2$
Domain:
All reals except −1
Range:
All reals except −2

6) $f(x) = \frac{3}{x+1} + 2$



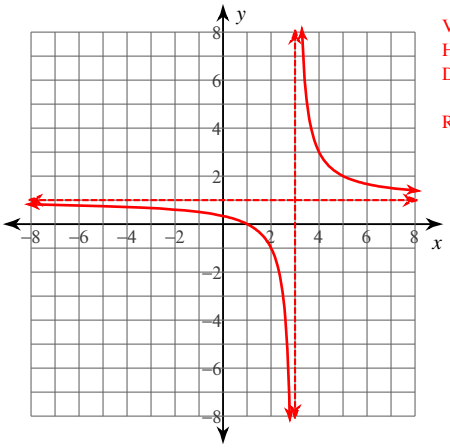
Vertical Asym.: $x = -1$
Horz. Asym.: $y = 2$
Domain:
All reals except −1
Range:
All reals except 2

7) $f(x) = \frac{3}{x} + 1$



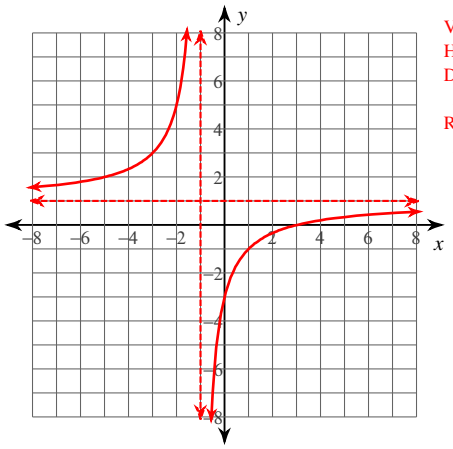
Vertical Asym.: $x = 0$
Horz. Asym.: $y = 1$
Domain:
All reals except 0
Range:
All reals except 1

8) $f(x) = \frac{2}{x-3} + 1$



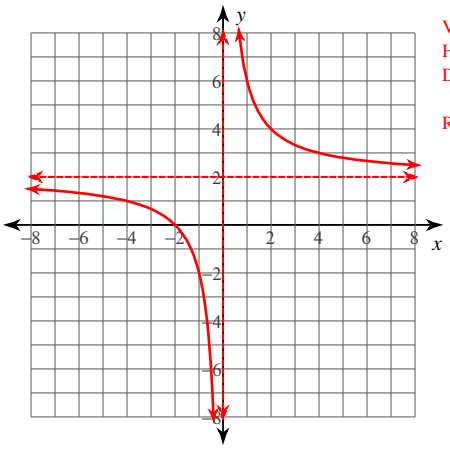
Vertical Asym.: $x = 3$
Horz. Asym.: $y = 1$
Domain:
All reals except 3
Range:
All reals except 1

9) $f(x) = -\frac{4}{x+1} + 1$



Vertical Asym.: $x = -1$
Horz. Asym.: $y = 1$
Domain:
All reals except -1
Range:
All reals except 1

10) $f(x) = \frac{4}{x} + 2$



Vertical Asym.: $x = 0$
Horz. Asym.: $y = 2$
Domain:
All reals except 0
Range:
All reals except 2

Critical thinking question:

11) Write a function of the form $f(x) = \frac{a}{x-h} + k$ with a vertical asymptote at $x = 25$

Many answers. Ex: $f(x) = \frac{1}{x-25}$